

REMARKS

Claims 1, 9, 21, 30, 31 and 37 have been amended. Claims 1-45 are pending in the application. Applicants respectfully request reexamination and reconsideration of the application.

In Paragraph Nos. 2 and 3 of the Office Action, the drawings have been objected to on the following grounds: (1) parts shown in section (and only such parts) must be cross-hatched; (2) In Figures 1B and 2C, the significance of the " $\Delta x$ " is stated to be not understood; (3) Figure 5H is stated to be incorrect based upon the explanation of that figure at page 23, last paragraph; and (4) in Figure 10, reference no. 982 is not shown, as a typographical error "9 8" appears. As explained in greater detail immediately below, Applicants append hereto drawings showing changes in red ink consistent with MPEP § 608.02(v). Formal drawings are also being submitted to the draftsman.

In response to grounds (1) of the objection, Applicants submit herewith formal drawings showing the proper cross-hatching.

In response to ground (2) of the objection, Applicants note that " $\Delta x$ " refers generally to the amount of lateral or horizontal deflection of the tip structure of an interconnection element when it is moved into wiping contact with a terminal (not shown in Figures 1B or 2C). See, for example, the discussion in the specification at p. 10, ll. 16-21 and p. 12, ll. 13-18.

In response to ground (3) of the objection, Applicants have corrected the specification to more accurately describe Figure 5H.

In response to ground (4) of the objection, Applicants submit herewith formal drawings showing the correction of the typographical error "9 2" with --982--.

In response to the objection to the specification in Paragraph No. 4 of the Office Action, Applicants note that an explanation of " $\Delta X$ " is provided above. The Examiner's question as to the phrase "to crease the bulk" is addressed by correcting the typographical error which resulted in the word "crease" appearing rather than the proper word --increase--. The specification has been amended to correct this typographical error.

In response to the Examiner's comment as to the correction of minor errors in the specification, Applicants have reviewed the specification and made the amendments noted above. It is believed that none of the amendments result in the introduction of new matter.

With respect to the 35 USC § 112, second paragraph rejection set forth in Paragraph Nos. 6 and 7, Applicants have amended each of the independent claims to more clearly identify the claimed subject matter.

With respect to the 35 USC § 102(e) rejections of Paragraph Nos. 8-10, Applicants provide the following comments. Preliminarily, Applicants note that the present invention includes a blade that runs "parallel to a horizontal wiping motion" of an interconnection element or tip structure relative to an electrical terminal or an electrical contact. Each of the independent claims has been amended to clarify that the horizontal motion being referenced is a wiping motion. While it is believed that this wiping aspect was inherent in the existing claim language, the inclusion of the word is to clarify such horizontal motion.

In Paragraph No. 9, U.S. Patent No. 6,114,221 (Tonti) is the basis for the § 102(e) rejection. Tonti addresses a method for electrically interconnecting a plurality of stacked circuit chips in precise alignment. More specifically, Tonti describes forming tetragonal pits and points to make electrical contacts. [E.g., col. 3, ll. 12-38]. In turn, Tonti requires the precise alignment of substrates; e.g., “[a] feature of the present invention is that the pits and points can be arranged to key the proper selected orientation of the top and bottom chips 10 and 24.” [See, col. 3, ll. 38-41]. To include a wiping action in Tonti would frustrate the precise alignment of the pits and points. Further, Applicants agree with the Examiner that Tonti discusses a pyramid tip [e.g., col. 3, ll. 49-51]; however, nowhere does Tonti disclose or suggest a blade as claimed by Applicant. Indeed, to employ such a blade running parallel to a horizontal wiping motion, as claimed by Applicants, would preclude the Tonti precise contact alignment for stacking structures.

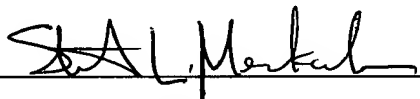
In Paragraph No. 9, U.S. Patent No. 5,764,486 (Pendse) is the basis for the § 102(e) rejection. Pendse addresses a structure for interconnecting a flip chip integrated circuit to a substrate using a wire bump. [E.g., col 2, ll. 44-54; col. 3, ll. 15-20; col. 4, ll. 49-61]. In contrast to Applicants’ blade, Pendse requires forming a pointed tip on the wire bump. [E.g., col. 3, ll. 15-20 and ll. 33-34]. The pointed tip of Pendse is substantially different from the blade as claimed by Applicants. Pendse does not disclose or suggest a contact with a blade at the end. Rather, Pendse consistently refers to a pointed tip [e.g., col. 3, l. 65], which may have different geometrical shapes [e.g., col. 4, l. 1]. The absence of a blade is not surprising in view of the fact that Pendse is discussing an interconnection structure utilizing a conductive bump wire. Respectfully, the blade as claimed by Applicants is patentably distinct from the pointed wire tip of Pendse.

In view of the foregoing, Applicants respectfully submit that all claims now pending in the application patentably distinguish over the cited and applied references and are in condition for allowance. Reconsideration of the application is respectfully requested, and early allowance of the claims as amended is solicited.

The Assistant Commissioner is hereby authorized to charge any fees that may be required by this transmittal and associated documents, or to credit any overpayment, to Deposit Account No. 50-0285.

Respectfully submitted,

Date: May 30, 2001

By:   
Stuart L. Merkadeau  
Registration No. 33,262

FormFactor, Inc.  
Legal Department  
5666 La Ribera St.  
Livermore, CA 94550  
925-456-7355  
925-294-8147 Fax